

Beall, Walker & Capps

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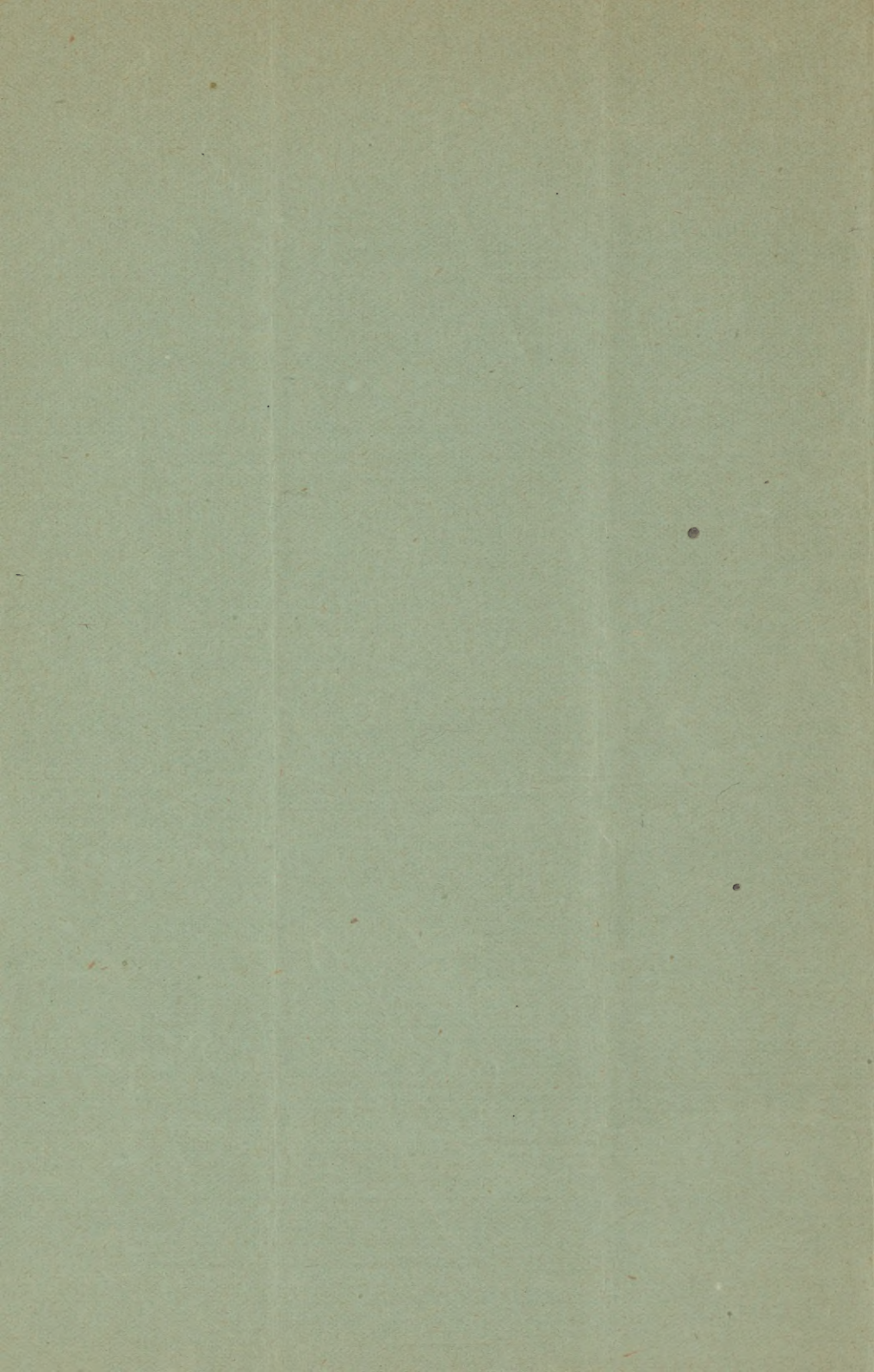
THE FITNESS OF THE CLIMATE OF TEXAS
FOR OPERATIVE SURGERY
DEMONSTRATED BY RESULTS IN RECENT
CAPITAL CASES.

BY

DRS. BEALL, WALKER AND CAPPS,

FORT WORTH, TEXAS.





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DRS. BEALL, WALKER and CAPPS, of Fort Worth, Texas.

More than a year ago one of our firm contributed a brief letter to a Texas medical journal, adverting to the subject of the present paper. The letter referred to grew out of a remark made by an able member of this Association, and a friend of the author of the present article. This distinguished gentleman asserted that the climate of Texas was not adapted to capital surgery; that the surgeons of Texas need never expect to realize such results as obtained in Philadelphia, New York, Boston, and the cities of Great Britain and Europe. The brief article referred to was favorably noticed by several of the operators of this State, but more particularly by the distinguished Dr. Cross, of San Antonio, who, in a letter, heartily sustained the views promulgated.

The student of surgery will readily concede that the subject of climate, as affecting results after operations, is meagerly referred to by the most prolix of writers. There is no modern work but treats of the precautions to be observed before and at the hour of operation; none but urge favorable local environment, yet nearly all have ignored the question as to whether or not certain climatic conditions enhanced the chances for favorable results. Whilst the members of the profession have ignored the subject measurably, at least one instance is recalled in which the laity have not done so, but have seriously considered whether or not our climate—aye, even one portion of our great State—did not offer, over another, a more favorable field for successful work and increased chances for recovery, when a serious surgical procedure was advised and contemplated.

It is well known that important hints and facts are sometimes derived from ignoble sources, even many such instances, unnecessary to name, mark the progress of medicine and surgery. In

*Read before the Texas State Med. Ass'n, at Austin, 1894.



the instance above alluded to, there had doubtless fallen under the observation of this gentleman (one of the non-professional class) something that led him to infer that perhaps operations here would be more hazardous than elsewhere, and he had determined that if such should prove to be the accepted theory or belief of the profession, he would, regardless of expense, seek the more favorable locality, and carry with him, out of his bailiwick if need be, the selected operator to perform the service deemed necessary in his particular case, and where the natural advantages presented the best chances for successful operation and recovery. He doubtless reasoned that Texas was a large State—an empire in point of area. He may perhaps have heard of the toast put into the mouth of the Mayor of Ft. Worth, Capt. Paddock, by the Governor of Colorado, when the Capt. responded to the toast of the Englishman at a banquet in New York. The latter, in speaking of the British possessions, said the sun never went down upon her territory. In replying, Capt. Paddock, in his inimitable style, claimed that Great Britain was only a diminutive spot as compared with the great State of Texas, which had for her boundaries the Aurora Borealis on the North, Primeval Chaos on the East, the Procession of the Equinoxes on the South, and the Day of Judgment on the West. He also doubtless knew that the west half of our great State was reputable for the cure of pulmonary diseases; had attracted to it those who suffered from grave neurotic or rheumatic diseases in the more elevated or cold regions of the North, as well as those affected from the malarial plasmoidum of the timbered lands of the eastern portion of our vast State and adjacent States, who sought favorable climate for cure. His deductions had led him to conclude that if diseases, multifarious in character, were cured by change of location, a like determining influence would similarly affect surgical cases; and, we reiterate, why not?

Travelers have observed* that the nomadic tribes of Arabia, going hither and fro upon the plains of that dry oriental country have little trouble with wounds of any kind. Summer heat (exsiccation) amid the tropics favors early adhesive wound repair. That repair in such climates is surer, quicker, and carries with it but a modicum of danger when compared with results in cold, damp climates. It is said that in the East Indies, wound

*Medical Record, N. Y.

cures are rapid and comparatively free from the interurrences and incidents that militate against the work of the surgeon in colder regions. It is also said that wounds and operations did much better among the troops in the Gulf and at and near New Orleans than among the wounded in the more northern fields of the late war, and in the face, too, of the fact that facilities for the proper treatment of the former were limited. Even in hospitals in the North, where every facility for wound treatment was lavishly supplied and at the command of those of superior skill and experience, the results were not so good as in the regions along the southern borders.

Rochard, in speaking with reference to the healing of wounds in tropical climates, says: "All of our confrères point out the rapidity of their course and the promptitude with which they heal. It is stated that in Madagascar the bad guns used by the Scholares often burst in their hands, and that in complicated wounds thus made, and requiring amputation, the healing process was wonderfully rapid, even in spite of the most irrational treatment."

One of the authors of this paper can substantiate the claim for influence of climatic aids in wound treatment by recalling an experience of the late war, when after a battle by Gen. Green, near the Atchafalaya, in the State of Louisiana, he repaired to the aid of the gallant Cupples. Upon consultation it was deemed best to remove the wounded to Alexandria, and he was deputed to superintend that work. These wounded soldiers, some thirty odd in number, were jolted over the rough roads in wagons, with the usual inadequate facilities for comfort or treatment. The seriously wounded were retained in field hospitals. Among the latter the distinguished Col. Boone, who lost left arm at shoulder joint, and little finger and thumb of right hand only left, remaining fingers and most of palm removed. They slept (what sleep came to them) upon nature's green carpet, when weather permitted, and when rain came, upon the hard benches or floor of the village churches or school houses. The heroes or heroines of the roadside divided with them their scanty morsels of food; the muddy, slow-running bayou divided its water with the soldier, the bull-frog, the tad-pole and the turtle; yet these men, sorely and severely wounded, many of them with wounds infested with maggots, protected as best we could with elder boughs, passed

through the ordeal with brave hearts and undiminished numbers, and very soon returned to the post of duty, not one having succumbed to the injuries received. Again, after one of the battles of the South-land, in which the writer rendered whatever aid lay in his power, with limited facilities and experience, he amputated (major amputations) twelve times, and the subjects of these amputations were turned into the general hospital from the field tent on the eleventh day after operation, not a death having occurred. If there be any present who ignore or deny the influence of climate in determining results in wound treatment, we would be glad to have them account for results mentioned upon some other theory. Antiseptic and aseptic wound treatment had not then occurred to the mind of Lister. Asepsis and antisepsis were yet in the womb of time, and experience was in its youth. Our facilities were poor and inadequate. We did use solution of chlorinated soda, the idea being to limit stench, not the germs of infection. Let the future surgical historian applaud our intention and charitably criticise our mistake.

If what has already been said and what shall follow in this paper shall sustain the position as to the beneficence of climate, and especially the climate of Texas, as a factor in successful wound treatment, the corollary must be admitted that conservative operative surgery is also offered a desirable field in Texas. "It is the immortal achievement of Lister* to have first attributed to fermentative influences the disturbances of wound repair—to have led treatment into a rational, hence successful, direction. Albuminoid substances, such, for instance, as blood or blood serum, in fact all of the tissues of the dead animal body, will become putrid under certain well-known conditions. These are: First, *moisture*; secondly, a certain temperature called *warmth* for short; and thirdly, the presence of living organizations or fungi, named schizomycetes, better known as bacteria and micrococci. If all these conditions are present the animal substance in question will ferment or putrefy. Absence of any one of these conditions, or diminished influence of any one of these requisites, will modify or prevent putrefaction. The active agents of decomposition are the micro-organisms, which will develop their disintegrating activity as the conditions are favorable to their development: *i. e.*, moisture and a certain degree of

*Gerster.

temperature. Modern wound treatment is based entirely upon the well-known principle—preservation of organic substances. Of these general modes of preservation *freezing* is inapplicable in human surgery—exsiccation, however, and burning with the actual cauter—then chemical sterilization with exsiccation, contains the essence of aseptic surgery. They secure wounds against decomposition and are a secure prevention of suppuration. It is well known that putrefactive processes are favored by moisture when other conditions are present. If it then be admitted that such conditions are requisite for putrefactive changes, where is the climate among known civilized peoples where the air is *drier, freer from moisture*, and in which, *ergo*, wound treatment should proceed more favorably as the conditions for putrefactive changes are moderated by the climate? The aborigines of Texas knew this fact, though they may not have been capable of theorizing satisfactorily about it; yet it was exemplified in their customs no less than in those of the heroes of the Republic of Texas. And it is a custom not yet extinct, as may be attested by many members of this association. If meat is cut in strips and hung for a short while in our dry atmosphere it can be preserved for weeks and weeks without salt or ice and no change of putrefactive character will occur. How many of us have seen the wild animal of the plains or the domesticated animal, when killed and left upon the prairie, dry, desiccate, and remain for months, yea for several years, without emitting the stench of putrefaction! “Cowmen” all know that castration wounds, in dry, clear weather, will heal without swelling, inflammation or suppuration; and if, on the contrary, they are castrated in moist, wet weather, the wound will more surely swell and suppurate and losses be sustained which might have been avoided if dry, clear weather had been selected instead. A similar condition has also been observed in branding their stock. If animals are branded in damp weather the brand wounds are larger, broader, less symmetrical than when dry, clear weather is selected for the operation. The writers believe that the natural taste of the buzzard is for decomposed animal matter. As animal matter in the putrefactive condition so rarely occurs in our climate, these scavengers are far less numerous upon our plains than in the older and damper States. It must be borne in mind that we claim that the causes which produce putrefactive changes in animal tissue intended as

a food product are identical with the changes which occur when animal tissue is subjected to the knife of the surgeon for conservative purposes, and that this change—putrefactive in kind—is the condition to be avoided if good results in surgical operations are expected.

Observation has shown that our climate is a dry one. If *moisture* is a pre-requisite for the development of those micro-organisms which favor wound or animal tissue infection, and we can offer some facts that show our climate to be dryer than most climates then it must follow that our State is a superior field for operative work, because *exsiccation* is a fundamental agent against animal tissue infection or putrefaction. Statistics of hygrometric nature compared with reports elsewhere indicate the dryness of the west two-thirds of our State. Why is this true? First, the evaporation from the bodies of water to the southward, whence our prevailing winds come, is from such great distances, condensed over so great an area of territory, that *our* moisture is limited indeed. Second, the damp, dark days are so few, and the days of bright sun and blue sky so many, the condition of exsiccation is increased. The alkaline matter which perverts the taste of the water of the plains perhaps tends to aid in preserving the dry condition of the atmosphere. Our vegetable and animal kingdoms are influenced by this natural condition. Another point is pertinent, and in this is perhaps the solution of the observation of the "cowmen." This is the comparative scarcity of the lower orders of animal life, *known to be the bearers of infection germs*. Flies are scarce in middle and western Texas, and away from the streams mosquitoes are practically unknown in many sections.

Now, admitting diminished moisture, the dryness of the atmosphere as favoring non-development and limitation of the agencies of wound infection, the long and bright sunshine perhaps presents an additional security to the surgeon. Late observations of Prof. Marshall Ward show that light—"sunlight"—has a destructive influence upon microbic activity. Ward's experiments are only corroborative of those of Tindall, Downey and others in England, and of those of Nocard, Déclaux, Roux and others in France." We can recall that tubercle bacilli are killed after two hours exposure to bright sunlight. This fact was first

*Pilcher.

noted by Koch. It may be of interest to note in this connection that "cowmen" claim that fresh animal tissue hung up in moonlight will spoil more readily than if hung and shaded from moonshine. We have been told that it is not an uncommon occurrence to hear in the camp of the cowboy the injunction: "*Take that meat out of the moonlight.*" They only know, without offering any theory, that there is a difference in the "keeping" of the flesh when placed in the dark and not in the light. How will scientists reconcile the observations of the ranchmen with theory? Is there a destructive influence due to rays of light? Rather is it not more likely that the carriers of the germs of *putrefaction* are more rife in the moonlight than in the dark? We know that insect gatherers attract the specimens they seek by erecting screens upon which reflected light is thrown. We also know that the arc lights of our streets attract myriads of insect life; that the statue of liberty in New York harbor has attracted thousands of birds in their migratory flight. If we then admit that *insects transport infective material*, may we not accept this theory to sustain the experience of the camp butcher. As "there is no land whose sun is half so bright, whose skies are half so blue," with proper care and watchfulness we need not say, as Dr. Shrady did, that "if the sunlight can be utilized as a microbicide, sanitary authorities should be specially watchful of pestilences breeding in neglected dark corners, which abound in all large cities of the world." If we could have sunlight on tap, artificial germicides might be consigned to the lumber room of things which had outlived their usefulness.

In our opinion it is not climatic disadvantages that place in unfavorable comparison the surgery of Texas. No operators under heaven have a more desirable field for successful work, more sunshine and blue sky. Our field of work is all right; but are we all right? The profession of Texas need education; the people of Texas need education. We must properly prepare ourselves by study. Our results will educate our clientele. We will then the more readily recognize surgical diseases in their incipency; work predicated upon an early recognition of conditions requiring the knife will give more favorable results than otherwise. We should educate ourselves so that when a case is presented, say with an abdominal tumor, we shall not say the case is one of pregnancy; when nine months have passed shall say 'tis

dropsy and evacuate, as we term it a dropsical effusion. A few weeks later repeat the operation, and again and again until the patient is dead and our mistake buried with her—an aspersion upon the surgery of our State and beneficent climate. When we shall attain to a higher educational plane our clientèle will observe the accuracy of our judgment and skill, will submit the more readily to our conclusions and advice, will be less easily switched off by the fulsome sure-cure advertisements of quacks and charlatans who disgrace the name of medicine. When this point is reached fewer cancers, fewer fibroids, and fewer injuries will carry our patients to premature graves, and our profession and our State suffer less. If it is admitted from what we have advanced that our climate is favored in advantages over other States for operative surgical work of whatever character, it is our duty as members of the commonwealth of Texas to exert ourselves to establish our supremacy. Professional pride, State pride, should exact extreme efforts for such an accomplishment. Besides State and professional pride, a duty born of conscience demands that we elevate advantages which either labor or nature confers. In so doing we induce immigration to our State. With immigration comes money; values are increased; intelligence is exalted; in fine, social make-up is enriched and happiness and pleasure is vouchsafed our people.

We have now presented the theories which obtain in reference to the causative agencies which influence wound treatment. We have adverted to the part exercised by moisture, heat and light as increasing or modifying wound infection. We have presented the observations of the "cowmen" of Texas as bearing upon the subject, and our blue sky and sunshine have been referred to. With all these references to establish the beneficence of our climate towards our noble art we should remember that with these advantages over other less favored lands we must not ignore the teachings of the Master, nor the innovations which time and mind have developed. It remains for us to study and labor, developing and improving upon our natural advantages, adopting every rational idea of method and technique. This done, with the prestige our climate offers, our statistics should show favorable comparison; indeed, should surpass the statistics of less favored sections.

To sustain the text of this paper, we append a table of recent

capital operations. The more interesting cases are offered with brief clinical histories. It will be noted that only one death occurred in the number, and that caused after the fourth day from the unfavorable local environment in which the case was treated, and upon which climatic conditions could not have had any unfavorable influence. It will be proper to add that, when we consider the agencies which may operate and mar a general surgical report, there are facts connected therewith which demand recognition, and which should not be laid to climatic influences. These conditions or facts may exist anywhere, and when operating unfavorably must be discarded from the general make-up when comparing results. It is a fact that local environment may act disastrously to operative surgery in all countries. It is a fact that certain constitutional conditions—the existence of certain diseases—will render abortive surgical skill and endeavor in all operative fields wheresoever. The question is: “Is our climate better than another, waving the conditions which obtain outside of climatic influences for surgical work and results? If so, has Texas a climate with inherent advantages?” The object of this brief, unstudied paper is to indicate that it has; and if further observation shall confirm our belief, we shall be amply rewarded in directing attention to the subject.

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[CONCLUDED.]

CASES.

CASE I.—*Cancer of the Uterus.*

Mrs. M., Williamson county, age 46, married, never pregnant, consulted us at office for pelvic pain and especially pain in region of hip. Prior late periods had been fairly regular, but metrorrhagic. There had not been an early flow from vagina. Cancer is said to have terminated life of mother. Other than the mother's, malignant disease had been unknown in her family.

When a woman, about the climacteric, complains of rather persistent pain, neuralgic in character, about the hip, whether accompanied with free menstruation or not, whether attended with watery, fetid flow or not, and especially if appearance is cachectic, an immediate examination should be insisted upon. This done, very frequently the revelation will be a sad one. Diseases of malignant character will usually be found to exist, and not infrequently so far advanced that surgery will be powerless for conserving life beyond a limited period.

This lady had been under treatment for several months. When examined by us she had passed beyond that period when the disease was local and accessible. She urged that something be essayed for her relief; that any procedure, however severe, be resorted to, if only a glimmer of hope was offered, that she might be spared longer to her husband and friends. With hardly a ray of hope, her abdomen was opened with object of a complete extirpation of uterus, in order to get beyond the confines of the relentless disease that would otherwise soon terminate her life. Section was done in careful manner, when the diseased organ was brought under observation. It was easy to determine that the disease had passed beyond the limits of any operative procedure, and with sad hearts we closed the window through which we had hoped to be able to accomplish something that would reward the bravery this interesting and hopeful woman manifested. In a few days she arose from her bed, none

*Read before the Texas State Medical Association, at Austin, 1894.



the worse for our efforts; not a pang added to her former distress. She returned to her home with such instructions as we deemed appropriate to mitigate the suffering of the few weeks left to her on earth. In a few weeks she died of the disease from which she sought relief through measures apparently severe; but from the operation had a successful recovery—due to clean hands, clean, quick work, and the beneficence of the climate of our great state.

CASE II.—*Gunshot Wound; Laparotomy and Transperitoneal Nephrectomy.*

Mrs. C., æt. 25, prostitute, shot herself with 42-caliber pistol. Ball entered anteriorly between seventh and eighth ribs; exit posteriorly three inches to left of spine. Shock severe, hemorrhage alarming, urine half blood. Diagnosis: internal hemorrhage and wound of kidney. Abdominal section was done six hours after reception of wound. Belly found half filled with blood; pieces of clothing carried into cavity by bullet; point of entrance filled with dirt, the woman having shot herself in a filthy back yard between a saloon and a bawdy house. After cleansing cavity and controlling hemorrhage, peritoneum was incised and kidney enucleated from its capsule. A thorough technique was conformed to in this case. The patient did well for three days; had good reaction, very slight surgical fever, and so little pain as not to require anodynes. On the fourth day septic peritonitis developed and she died. We have but little doubt, had the case been in different quarters, where the environment was good, recovery would have followed her severe injury and the operation demanded by the nature of the case.

CASE III.—*Multiple Uterine Myo-Fibroma; Sub-Pubic Hysterectomy; Recovery.*

Mrs. S., Callihan county, age 47. Excessive hemorrhage and pressure symptoms urged operation. Weight of fibroids and uterus about fifteen pounds. Rubber constrictor was used. Depertitionization to reduce pedicle—peritoneal collar around stump—below transfixion ~~stump~~ ^{line}. Amputation two-thirds inches above mouth of cervix. Uneventful recovery.

CASE IV.—*Tubercular Disease of Hip-Joint and Femur of Twenty-Four Years' Duration.*

Mr. B., age 34, Delta county. Never since tenth year free from discharge from numerous cloacæ. Thirty or forty de-

pressed cicatrices indicated the long existence of the disease. These were here and there from sacrum to middle third of thigh and variously located over hip region. The proximate end of femur was thoroughly ankylosed with pelvis. The head of femur had prior to ankylosis lost its attachment and normal position, and in the many years of the disease *migrated to middle of the thigh*, occupying a posterior lateral position. It was lying against the partially eburnated shaft of femur—eburnated itself—and was loose in a large conservation envelope from which several discharging sinuses led to the surface. Long excision, removal of head and chiseling away the eburnated portion of femur constituted the operation. Thorough irrigation, packing, etc., constituted treatment till cure was effected. (Specimen exhibited.)

CASE V.—*Nephrotomy.*

Mr. H., German, æt. 45, gave an uncertain history of nephritic colic; later suffered great pain over right kidney, followed by formation of tumor and abscess. Urine contained quantities of pus. A vertical incision was made over the kidney behind, and another transverse to this along border of lower rib. The kidney was cut into, and after washing out the pus a stone was found. Most of the kidney having been destroyed by the pus, the remaining portion was removed and the wound partly closed, free drainage being desired. Patient made good recovery, and when last heard from was enjoying splendid health.

CASE VI.—*Ovariectomy.*

Mrs. N., æt. 30. Tumor began to develop when she was 18 years of age, gradually enlarging till date of operation, when it weighed forty pounds. For eleven years she had been treated by various physicians, the diagnosis of dropsy having always been made. She had been tapped two or three times. There was some difficulty in making a positive diagnosis owing to the fact that the thin walls of the tumor giving it the feel of ascites, there being also ascitic fluid in the abdominal cavity. Operation was done and tumor removed through a three-inch opening. Patient made good recovery, and was out in fifteen days.

CASE X.—*Uterine Fibro-Myoma; Supra-Vaginal Hysterectomy; Extra-Peritoneal Method.*

Patient, Alice R. Examination revealed uterine fibroid extending upwards on a line with umbilicus. Operation was de-

cided upon and done at Rockdale. The long median incision was made. The major portion of the tumor extended through the incision. Here the progress of the operation was delayed through the existence of a number of smaller fibroids adherent to pelvic viscera. The broad ligaments on each side were clamped and ligated off. At the stage of the operation, we desire to lay stress upon a point in technique, which we are sure gives assistance to the operator and contributes subsequent comfort of no mean degree to the patient, namely, deperitonizing the tumor, which is done by a circular incision through the investing tumor peritoneum three or four inches above the point where pedicle is to be made. This enables the membranes to be easily stripped down, aiding greatly in obtaining the pedicle, thereby relieving the traction made upon the bladder and rectum by the ~~normal~~ fixation of the tumor stump. A pedicle thus secured was transfixed with two long pins, a serre neud applied, tightened, and tumor excised. The peritoneum sutured around the stump, and the abdominal wound closed. The wire was made tighter each succeeding day, and on the eighth or tenth day the stump came away, leaving a smooth granulating surface. The patient made a rapid recovery. Temperature at no time was above 100°. There was no occasion to use catheter; and at this time the patient is well, a strong and healthy woman.

CASE XIII.—*Multilocular Ovarian Cystoma; Ovariectomy; Recovery.*

Mrs. T., Troy, Belle Co. The patient had been for several years treated for dropsy, by traveling and advertising quacks. Finally she fell into the hands of Drs. Taylor and Taylor, who readily made a correct diagnosis, and insisted upon an immediate operation, as her general health was rapidly depreciating, having marked facies ovariana. Median abdominal incision was made. The cyst proved to be multilocular, requiring some delay in breaking up and evacuating the daughter cyst. Adhesions were tied off with fine silk. The pedicle secured with braided silk. Quite a quantity of colloid material escaped into the abdominal cavity, which condition required a thorough flushing of the cavity, which was done with sterilized hot water. The wound closed with silk-worm gut sutures. But limited shock followed the operation, and the patient progressed to a speedy and favorable termination. Temperature at no time was above 100°. The thorough abdom-

inal irrigation was, without doubt, an active cause in the rapid recovery of the patient.

CASE XIV.—*Floating Kidney; Nephrectomy; Recovery.*

Mrs. Patsy W., Rockdale Tex., November, 1893, age 30, three children. Since birth of her last child she has endured a constant pain in the right hypochondriac region, which was increased in degree when standing or in sitting position. Marked and rapid emaciation had followed her last confinement. A type of neurosis of reflex irritative character was so distinct as to suggest to attending physicians that perhaps hysteria was associated in the case. The urine was high colored and ammoniacal; vesical irritation an annoying condition. Of the latter manifestations of disease, gastric symptoms developed, with nausea and vomiting, the patient bearing every evidence of rapid decline. Physical examination disclosed an abdominal tumor, which by manipulation could be shifted from the lumbar region to margin of ribs, and thence to a point in abdominal cavity, corresponding to the umbilicus. Then by a reverse movement the body could be returned to its original site. Diagnosis: that of displaced kidney. The gravity of the condition of the patient demanded relief and advised extirpation of the organ. This was done by a vertical lumbar incision, extending from lower margin of ribs to the crest of the ilium. The displaced organ was retained in position by the hand of an assistant. The retro-peritoneal space was soon reached, and but little difficulty was encountered in transfixing the pedicle and ligating the renal vessels. The ureter was included in separate ligature. A large drainage tube was used, wound closed with silk-worm gut sutures, and dressed according to modern wound treatment. Twelve hours after operation, patient passed one pint of urine. Made an uninterrupted recovery, with no formation of pus or rise of temperature.

CASE XVII.—*Appendicitis; Operation; Recovery.*

Patient, Dr. M., practicing physician from Bollinger, Tex., age 47. This the second or third attack. Recognizing the urgency of operation, he had himself conveyed to Ft. Worth on a cot. Had pain, fever and iliac tenderness. Operation done. The pus was found down behind the cecum, the appendix being turned upward and lying behind the peritoneum. The abscess could not be reached except by opening the peritoneum. Able to leave for home in about two weeks.

CASE XVIII.—*Traumatic Aneurism of Brachial Artery, and Division of Median Nerve.*

Mr. A. J. D., Colorado City, age 27. In using a Winchester rifle, a cartridge in magazine exploded, and a fragment of the metallic shell punctured the upper portion of the arm, about the insertion of the deltoid muscle. Great hemorrhage followed the injury, which was arrested by Dr. Coleman, by means of compression. Patient was referred to us for further treatment. From the local tumefaction and discoloration, absence of radial pulse and a history of severe hemorrhage, led us to the opinion that a severe injury had been done his brachial artery at the point where it exchanges its name to the axillary. There was a loss of sensation in the thumb, index and middle fingers. Whether the nerve injury was due to blood clot pressure or direct traumatism, we were at that time unable to decide. Operation done at once. The sub-clavian artery was securely compressed above the clavicle, an incision made over the site of the tumor corresponding to line of artery. Blood clots were rapidly turned out and sponges stuffed instead, the two ends of the artery secured with forceps and tied off. Upon further examination it was discovered that the median nerve was also divided by the fragment. This was sutured with fine silk. An aseptic dressing applied, and patient made an uninterrupted recovery.

CASE XXII.—*Carcinoma of the Breast; Amputation and Excision of Axillary Glands.*

Patient, Mrs. T., from Canton, Van Zandt county. The entire mammary gland was excised, although no enlargement of axillary glands could be made out. As a safeguard the incision was extended and the entire axillary space cleaned out, including fat glands and fascia. Upon examination the glands ^{were} found to be enlarged and undergoing malignant degeneration, thus demonstrating the importance of removing the axillary glands in carcinoma of the mamma. The long wound of at least fourteen inches was closed and a compressive dressing used. The wound was well in seven days, with dressings only changed twice. No shock or fever followed the operation.

CASE XXVI.—*Stone in Bladder.*

Mr. V., Jones county, age 65. Stone in bladder for number of years; severe cystitis. Supra-pubic operation. Protracted drainage on account of the long existing cystitis. Recovery in a reasonable time.

CASE XXVII.—*Tubo-Ovarian Disease.*

Mrs. C., Trinidad, age 30. Abscess had communicated with bowel and vagina, ovaries mere pus sacks as large as small oranges. Both ruptured during enucleation, and pus flooded cavity. Adhesions were very great to bowels, bladder, etc. After thorough irrigation, Price's glass drainage tube, packed around with iodoform gauze, was used. The size of drainage tube was gradually reduced, but continued eight weeks, washing out tube and tract daily with peroxide of hydrogen. Recovery has ensued. Communications with bowel and vagina have closed and woman is well, except some neurasthenic symptoms, which time will perhaps correct.

CASE XXVIII.—*Amputation of Thigh, Upper Third.*

Mrs. W., Jack county, age 40. Horses ran away, throwing lady against tree. Knee joint was comminuted, with compound comminuted fracture of femur extending to upper third of that bone. Fragments of the femur were driven into the tree. Infection followed; suppurative tracts extended to the body. Pus passed beneath and about Poupart's ligament. Seventy days after injury was received we amputated thigh, sawing bone at trochanter major. Infected tracts were followed to the abdominal cavity. Masses of necrotic tissue were removed. The entire amputation wound was sutured, and drainage instituted through the openings near Poupart's ligament. The lady made good recovery.

CASE XXXI.—*Jacksonian Epilepsy.*

Master A., Jack county, age 18, was kicked by horse, fracturing skull just in front of superior portion of mastoid process. Two months after injury we visited boy. Had chill; 105° F. temperature, 130 pulse, relaxed skin, epileptoid seizures and paresis of the arm. After semilunar incision of scalp, found pieces of necrosed bone and a small hernia cerebri. The diseased bone was removed, an abscess by side and beneath the hernia incised. Strict antisepsis and drainage; fever subsided, patient made rapid recovery from the urgent symptoms present. Ten months subsequently to above condition, was seized with epileptoid convulsions and disturbance of arm centre. Boy was brought to us at Ft. Worth. We made accurate measurement, locating the fissure of Rolando and mapped out the location of the controlling centre, which produced the arm disturbance. We made a semi-

lunar incision two and one-half inches above the original injury. Found that a linear fracture extended across the disturbed centre and that the fracture, slightly overriding and filled with a fibrous union, was exerting pressure upon the dura mater over the disturbed arm centre. After removing a large button of bone, we followed the fracture above and below, freely removing the edges and false union with the rongeur. Repair after operation was rapid and uneventful, and he soon returned to his home. A few days ago we heard that the young man was in a satisfactory condition, had had no paresis of the arm, nor had he suffered an epileptoid seizure since he returned to his home.

CASE XXXIV. — *Dermoid Cyst; Ano-Coccygeal Region; Operation; Recovery.*

Mr. B., Throckmorton county, consulted us for fistula in ano; case one of long standing. Suffered from frequent formation of abscesses, followed by rupture and discharge. There was swelling, tumefaction and discharge from a small sinus. Communication could not be found to exist with the bowels. Free incision; the removal of a large bunch of hair, and curettage, constituted the operation. Parts were stuffed with gauze, and repair by granulation process was rapid and complete.

CASE XXXVIII. — *Mastoid Operation.*

Mr. A. P. W. B., Burleson, Texas, age 74. Seen in consultation with Drs. Hall and Pickett, of Burleson. The case presented a history of otitis media purulenta, following an attack of la grippe. Upon first visit the patient's right ear was found to be discharging pus, and when thoroughly cleansed perforation of the membrana tympani was observed. Twenty-four hours succeeding this visit the patient's condition improved, but the next day he grew rapidly worse, and upon second visit, on April 4th, found him in a semi-comatose condition. At once proceeded to open the mastoid, first making a Wilde incision, then elevating the periosteum, and with mallet, chisel and gouge entered the antrum, following the method of Schwartze. The broken down cells were curetted, communication through the tympanum established, and the wound thoroughly cleansed with peroxide of hydrogen and dressed with iodoform gauze. This dressing was continued daily for thirteen days, at which time Dr. P. writes as follows: "Temperature normal, pulse 84; rests well nearly all the time. Takes nourishment with considerable relish. Wound over mastoid healed nicely and no discharge of

pus from auditory canal." Under date of April 21st Dr. Pickett reports that Mr. B. has made a complete recovery.

CASE XL.—*Exploratory Laparotomy; Recovery.*

Mr. B., age 38, consulted us when en route to Mineral Wells. An examination led us to believe that he either labored under an obstruction of the common bile duct, or that he was a subject of malignant disease. We suggested an exploratory section, that condition could be ascertained. If an obstruction from a lodged calculus, he could, perhaps, be relieved; if malignant disease existed, with proper technique, the exploration carried with it a limited risk to life. Mr. B. was very much emaciated; his skin was intensely jaundiced; his ability to take food very limited; his urine was high colored; his bowel discharges clay-like, and an intense and general paresthesia annoyed him beyond measure. He gave the history of repeated attacks of colic occurring at short intervals. Succeeding these attacks the symptoms detailed above were always aggravated. We felt very well convinced that obstruction of the common duct was his condition. We could not conclude otherwise. The long persistence of the symptoms urged us to suggest an operation. It would, at all events, throw light upon the condition, which evoked different diagnostic opinions from various intelligent physicians who had seen and examined him.

After considerable delay he returned to Ft. Worth and submitted to an exploratory examination. His condition had become very much worse than when we first saw him. He was more emaciated and exhausted. The paresthesia was maddening, his skin cholemic beyond anything we had previously seen. With these unfavorable symptoms an incision was made. Just as we had reached the cavity, had seen the distended gall-bladder, felt the thickened and enlarged duct and *rough, nodulated* condition of the liver, an assistant remarked that he had never felt a worse pulse, and that unless we hurried matters we would not get patient off the table alive. His remark hurried our manipulations and observations, and feeling such hardened condition of the duct tract and adjacent structures, the *hardened, nodulated condition* of the liver, we hastily concluded that that case was one of malignant nature. The sequel of this case shows that it was one of obstructed duct, and doubtless the hurried manipulations led to the indirect relief of the obstruction. It has been observed in many cases that operations within the

abdominal cavity when not completed, or operations of an exploratory character, often result in the cure of the patients. We believe that had we made the exploration at an earlier day and before the patient had become *devitalized*, as it were, we would not have been forced to suspend the work, and that we would have incised and removed the obstruction from the duct, or would have emptied the gall-bladder, or done a cholecysto-enterotomy. Then his recovery would have been more rapid than it has been; yet, we are glad to know that Mr. B. has, since the section and manipulation, gradually been restored to fair health. Though time was too short to be sure as to the exact condition, and caused us to express an unfavorable opinion as to recovery, it is a source of gratification that our efforts tended, doubtless led, to the restoration of his health.

CASE XLV.—*Sarcoma of Foot; Amputation; Recovery.*

Mr. H., age 22, from the Pan-Handle, after several months' treatment for swelling of anterior portion of the foot (plantar surface), consulted us at Ft. Worth. Progress of the disease for seven months: the swelling was size of black walnut, not ulcerated, large veins coursing over the surface. The duration of the disease, that it had not responded to intelligent treatment, and the age of patient led us to suspect sarcoma. After cocainizing apex of swelling we made an incision and removed a portion for microscopic examination. The examination showed round cell sarcoma, and we advised amputation below the knee. This was done, and the cure of case proceeded without untoward results till its completion, when the patient returned to his work as a ranchman in the northwest.

CASE XLVII.—*Double Equino Varus; Phelps' Operation; Good Result.*

Master D., age 3 years. Various methods and appliances had been used to correct the exaggerated congenital deformity, but without success. A more radical operation was decided upon after Phelps' method. The feet were rendered bloodless, and tenotomy of tendo achillis first made. Then incision was commenced in front of the tip of inner malleolus and extended downward to middle of the sole of foot. All resisting soft tissues were divided, including the deltoid ligament and entering the joint itself. The feet were over-corrected, antiseptic dressing applied, and an over-corrected position retained by plaster paris bandages.

TABULATED STATEMENT OF CASES.

Name or Initial.	Age. Yrs.	Sex.	DISEASE OR INJURY.	Duration.	Anesthetic.	Result.	OPERATION. REMARKS.	Case No.
Mrs. M.	46	F	Cancer of uterus	6 months	E	R	Exploratory; too far advanced for removal	1
Miss C.	25	F	Gunshot wound of kidney	6 hours.	E	R*	Laparotomy & transperitoneal nephrectomy	2
Mrs. S.	47	F	Multiple uterine fibroid	3 years.	E	R	Supra-pubic hysterectomy	3
Mr. B.	34	M	Tubercular disease of hip-joint	24 years.	E	R	Removal of head of femur	4
Mr. H.	45	M	Pyelo-nephritis	4 months	E	R	Nephrotomy	5
Miss N.	30	F	Ovarian tumor	11 years.	E	R	Laparotomy	6
Mrs. T.	24	F	Pyo-salpinx	6 months	E	R	Laparotomy; removal left tube and ovary	7
Mr. S.	45	M	Fracture of skull	2 hours.	E	R	Elevation and removal of fragments	8
Mr. W.	27	M	Fracture of skull	12 hours.	E	R	Trephining	9
Alice R.	38	F	Uterine fibroid myoma	5 years.	E	R	Supra-vaginal hysterectomy	10
Mr. R. P.	36	M	Compound fracture gunshot wound	3 days.	E	R	Amputation of arm at upper third	11
Alfred D.	24	M	Osteo-sarcoma	6 months	E	R	Amputation of arm at middle third	12
Mrs. T.	36	F	Multilocular ovarian cystoma	3 years.	E	R	Laparotomy	13
Mrs. W.	30	F	Floating kidney	6 months	E	R	Nephrectomy	14
May W.	10	F	Tubercular osteo-myelitis of tibia	7 weeks.	E	R	Removal of necrosed bone	15
Mr. M. T.	48	M	Recurrent suppurative appendicitis	2 weeks.	E	R	Laparotomy	16
Dr. M.	47	M	Appendicitis	10 days.	E	R	Laparotomy	17
Mr. N. J.	27	M	Traumatic aneurism brachial artery	2 weeks.	E	R	Removal of clots & ligature of ends of artery	18
German.	60	M	Cancer of stomach	Unknown.	E	R	Exploratory laparotomy	19
Mr. E.	24	M	Malignant edema of posterior of ulna	4 months	E	R	Removal of ulna	20
Mr. T. A. F.	32	M	Large lipoma	6 years.	E	R	Removal of tumor	21
Mrs. T.	40	F	Carcinoma of breast	2 years.	E	R	Removal of breast and axillary glands	22
Mrs. S.	40	F	Vesico-vaginal fistula	5 weeks.	E	R	Repair of injury	23
Mrs. G.	65	F	Ovarian cyst and chronic obstruction of bowels	3 years.	E	R*	Laparotomy; removal of tumor	24

Mrs. E.....	28	F	Par-ovarian cyst.....	2 years.	C	R	Laparotomy; removal of tumor.....	25
Mr. V.....	65	M	Vesical calculi.....	4 years.	E	R	Supra-pubic lithotomy.....	26
Mrs. C.....	30	F	Tubo-ovarian disease.....	1 year.	E	R	Laparotomy; removal of pus sac.....	27
Mrs. W.....	40	F	Comp. comminuted fracture of femur.....	70 days.	E	R	Amputation of thigh, upper third.....	28
Mrs. F.....	30	F	Tubo-ovarian disease.....	3 years.	E	R	Laparotomy; removal of pus sac.....	29
Mr. S. P.....	45	M	Abscess—hernia testi.....	3 days.	E	R	Removal of left testicle.....	30
Master A.....	18	M	Jacksonian epilepsy.....	1 month.	E & C	R	Removal of bone over motor aria.....	31
Mstr. A. L.....	19	M	Tubercular disease of the tibia.....	— years.	E	R	Removal of diseased bone.....	32
Rev. B.....	60	M	Fungus oculi.....	3 months	E	R	Enucleation of eye.....	33
Mr. B.....	30	M	Dermoid cyst of ano-coccygeal region.....	— years.	E	R	Removal of cyst.....	34
Master C.....	10	M	Tubercular osteitis.....	6 months	E	R	Removal of diseased bone.....	35
Mrs. P.....	45	F	Carcinoma of mammary gland.....	8 months	E	R	Removal of mammary and axillary glands.....	36
Master M.....	19	M	Tubercular disease of elbow-joint.....	2 weeks.	E	R	Amputation of arm, middle third humerus.....	37
Mr. B.....	74	M	Mastoid disease.....	3 months	C	R	Mastoid operation (Schwartz).....	38
Mrs. C.....	38	F	Pelvic abscess.....	6 months	Co	R	Incision; drainage.....	39
Mr. B.....	38	M	Obstruction of common bile duct.....	3 months	E	R	Laparotomy.....	40
Mrs. S.....	25	F	Pelvic abscess.....	18 months	E	R	Vaginal evacuation; drainage.....	41
Miss W.....	12	F	Tubercular caries ankle and rib.....	12 months	E	R	Incision; thorough removal of disease.....	42
Mr. C.....	26	M	Tubercular caries.....	3 days.	E	R	Incision; thorough curettage.....	43
Mr. W.....	27	M	Appendicitis (eighth attack).....	7 months	E	R	Laparotomy.....	44
Mr. B.....	26	M	Sarcoma of foot.....	5 weeks.	E	R	Amputation of leg, upper third.....	45
Mr. T.....	48	M	Recurrent appendicitis.....	3 years.	Co	R	Incision; drainage.....	46
Master D.....	3	M	Double club foot.....		E	R	Phelps' operation.....	47

REMARKS, ETC.

ABBREVIATIONS.—M, male; F, female; E, ether; C, chloroform; Co, cocaine; R, recovery; R*, recovery claimed as subsequent death did not result from loss of blood, shock or other incidents connected with the operation proper.

SUMMARY OF CASES.

Laparotomy, 16; amputations, 5; appendicitis, 4; compound fracture of skull, 3; tubercular osteo-mylitis, 3; nephrectomy, 2; hysterectomy, 2; carcinoma of the breast, 2; and one each of following: lithotomy, castration, mastoid disease, double Phelps' operation, large lipoma, Jacksonian epilepsy, fungus oculi, malignant disease of periosteum of ulna, and dermoid cyst of the ano-coccygeal region. Total, 47 cases.

